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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,503	02/05/2002	Seiya Yamada	PW 277037 H7623US	3787

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EXAMINER

BATTAGLIA, MICHAEL V

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/068,503	YAMADA, SEIYA	
	Examiner	Art Unit	
	Michael V Battaglia	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6 and 9-11 is/are rejected.
- 7) ☐ Claim(s) 4, 5, 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3 IDS's</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 16(a) and 16(b) should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claim 4 is objected to because of the following informalities: In claim 4, replacing "a multiple of" with -multiple- on line 4 and "multiple of the" with -multiple- is suggested. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 6 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu (US 6,535,470).

In regard to claim 1, Wu discloses an apparatus for recording a signal on an optical disc (Fig. 3, element 46) by irradiating an optical beam according to a strategy which is stepwise updated by a given step amount, the apparatus comprising: a detector (Fig. 15, element 144) that successively detects a linear velocity of the optical disc relative to the optical beam in realtime basis; a strategy generator (Fig. 15, element 148) that operates every time the detector detects the linear velocity of the optical disc (Col. 11, lines 45-49) for successively generating the strategy according to the detected linear velocity; a storage (Fig. 15, element 140) having a plurality of storage areas (Fig. 15, element 142), each being capable of memorizing the strategy successively generated by the strategy generator; a write controller (Fig. 15, elements 148 and 156) that rewrites one of the storage areas every time the strategy is generated until the strategy is updated by a given step amount (Fig. 14) and then rewrites another of the storage areas every time the strategy is generated while leaving said one storage area to hold the updated strategy, thereby updating the strategy through the plurality of the storage areas; a read selector (Fig. 15, elements 148 and 152) that selects the storage area holding the updated strategy to read therefrom the updated strategy while

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allowing the write controller to rewrite another storage area; a pulse generator (Fig. 15, element 154 and 162) that generates a pulse waveform shaped according to the updated strategy fed from the read selector; and a recorder (Figs. 3 and 4, element 48) for irradiating the optical beam in response to the generated pulse waveform to record the signal on the optical disc. It is noted that the strategy generator operates every time the detector detects the linear velocity of the optical disc by comparing linear velocity detected to the transition linear velocity.

In regard to claim 2, Wu discloses a function storage (Fig. 15, elements 122, 163 and 164) that memorizes a function for determining an optimal value of either a pulse width or a pulse frequency of the pulse waveform in relation to the linear velocity, wherein the strategy generator generates the strategy in terms of the optimal value of the pulse waveform by inputting the detected linear velocity into the function (Col. 11, lines). It is noted that the function has an optimal value of the pulse waveform for each of a plurality of ranges of detected linear velocity (Figs. 11 and 14). The strategy generator enters the detected linear velocity into the function and outputs (generates) the pulse waveform for the range of linear velocity in which the detected linear velocity falls, which is the optimal value of the pulse waveform.

In regard to claim 6, Wu discloses that the pulse generator generates the pulse waveform containing a top pulse and subsequent pulses, and the strategy generator generates the strategy according to the detected linear velocity such that the strategy contains parameters for specifying a width of the top pulse, a width of each subsequent pulse and an interval of the subsequent pulses (Figs. 8-10 and 15).

In regard to claim 9, Wu discloses a motor (Fig. 4, element 42) for rotating the optical disc at a constant angular velocity such that the linear velocity varies relative to the optical beam as the optical beam moves radially of the optical disc (Figs. 13 and 14 and Col. 13, lines 4-6), wherein the

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strategy generator successively generates the strategy every time the varying linear velocity is detected (Fig. 18, elements 216 and 230).

In regard to claim 10, Wu discloses a method of recording a signal on an optical disc by irradiating an optical beam according to a strategy which is stepwise updated by a given step amount, the method comprising the steps of: successively detecting a linear velocity of the optical disc relative to the optical beam in realtime basis (Fig. 18, element 214); successively generating the strategy according to the detected linear velocity every time the linear velocity of the optical disc is detected (Fig. 18, element 232); providing a plurality of storage areas (Fig. 15, element 142), each being capable of memorizing the strategy successively generated; rewriting one of the storage areas every time the strategy is generated until the strategy is updated by a given step amount and then rewriting another of the storage areas every time the strategy is generated while leaving said one storage area to hold the updated strategy, thereby updating the strategy through the plurality of the storage areas (Fig. 18, element 232); selecting the storage area holding the updated strategy to read therefrom the updated strategy while allowing the rewriting of another storage area (Fig. 18, element 228); generating a pulse waveform shaped according to the updated strategy held in the selected storage area (Fig. 17); and irradiating the optical beam in response to the generated pulse waveform to record the signal on the optical disc (Figs. 3 and 4, element 48). It is noted that the linear velocity of the optical disc relative to the optical beam successively detected is the linear velocity stored in the transition velocity register (Fig. 15, element 163) and every time the linear velocity stored in the transition velocity register is detected, a strategy is generated and rewritten in one of the storage areas (Fig. 18, element 232).

In regard to claim 11, Wu discloses a computer program for use in a disc apparatus having a processor for recording a signal on an optical disc by irradiating an optical beam according to a

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strategy which is stepwise updated by a given step amount, the computer program being executable by the processor for enabling the disc apparatus to perform a process comprising the steps of: successively detecting a linear velocity of the optical disc relative to the optical beam in realtime basis (Fig. 18, element 214); successively generating the strategy according to the detected linear velocity every time the linear velocity of the optical disc is detected (Fig. 18, element 230); providing a plurality of storage areas (Fig. 15, element 142), each being capable of memorizing the strategy successively generated; rewriting one of the storage areas every time the strategy is generated until the strategy is updated by a given step amount and then rewriting another of the storage areas every time the strategy is generated while leaving said one storage area to hold the updated strategy, thereby updating the strategy through the plurality of the storage areas (Fig. 18, element 232); selecting the storage area holding the updated strategy to read therefrom the updated strategy while allowing the rewriting of another storage area (Fig. 18, element 228); generating a pulse waveform shaped according to the updated strategy held in the selected storage area (Fig. 17); and irradiating the optical beam in response to the generated pulse waveform to record the signal on the optical disc (Figs. 3 and 4, element 48). It is noted that the linear velocity of the optical disc relative to the optical beam successively detected is the linear velocity stored in the transition velocity register (Fig. 15, element 163) and every time the linear velocity stored in the transition velocity register is detected, a strategy is generated and rewritten in one of the storage areas (Fig. 18, element 232).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Ogawa (US 6,704,269).

Wu discloses the apparatus according to claim 2, Wu does not disclose the apparatus further comprises a disc detector that detects a type of an optical disc for recording of the signal, wherein the function storage memorizes a plurality of functions in correspondence to a plurality of types of the optical disc; and the strategy generator uses the function corresponding to the detected type of the optical disc for generating the strategy in matching with the detected type of the optical disc.

Ogawa discloses an apparatus for recording a signal on an optical disc by irradiating an optical beam according to a strategy, the apparatus comprising a disc detector (Fig. 1, element 32) that detects a type of an optical disc for recording of the signal and a function storage (Fig. 1, element 34) that memorizes a plurality of functions in correspondence to a plurality of types of the optical disc (Col. 10, lines 13-20), and a strategy generator (Fig. 1, element 36) uses the function corresponding to the detected type of the optical disc for generating the strategy in matching with the detected type of the optical disc (Col. 10, lines 23-27). Ogawa discloses that different disc types have different optimum waveform characteristics (Col. 7, lines 16-18 and Tables 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of Wu to further comprise a disc detector that detects a type of an optical disc for recording of the signal, wherein the function storage memorizes a plurality of functions in correspondence to a plurality of types of the optical disc, and the strategy generator

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uses the function corresponding to the detected type of the optical disc for generating the strategy in matching with the detected type of the optical disc as suggested by Ogawa, the motivation being to enable the recording waveform to be optimized for the type of disc on which recording is carried out.

Citation of Relevant Prior Art

7. Toda et al (US 5,642,343) discloses storing edge position adjustment information corresponding to linear velocity and temperature (Fig. 33 and Col. 34). Sato (US 6,563,775) discloses storing functions to calculate waveform characteristics dependent on linear velocity (Fig. 6, element S8). Hayashi et al (US 6,493,305) discloses an apparatus that controls recording pulse width according to rotational speed and media type (Fig. 3).

Allowable Subject Matter

8. Claims 4, 5, 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to overcome the claim objection mentioned above.

In regard to claim 4, none of the references of record alone or in combination disclose or suggest an apparatus for recording a signal on an optical disc by irradiating an optical beam according to a strategy which is stepwise updated by a given step amount, the apparatus comprising: a detector that successively detects a linear velocity of the optical disc relative to the optical beam in realtime basis; a strategy generator that operates every time the detector detects the linear velocity of the optical disc for successively generating the strategy according to the detected linear velocity; a storage having a plurality of storage areas, each being capable of memorizing the strategy

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successively generated by the strategy generator; a write controller that rewrites one of the storage areas every time the strategy is generated until the strategy is updated by a given step amount and then rewrites another of the storage areas every time the strategy is generated while leaving said one storage area to hold the updated strategy, thereby updating the strategy through the plurality of the storage areas; a read selector that selects the storage area holding the updated strategy to read therefrom the updated strategy while allowing the write controller to rewrite another storage area; a pulse generator that generates a pulse waveform shaped according to the updated strategy fed from the read selector; a recorder for irradiating the optical beam in response to the generated pulse waveform to record the signal on the optical disc; and a temperature detector that detects a temperature around the recorder, **wherein the strategy generator generates multiple strategies according to the detected linear velocity for different zones of the temperature, the write controller holds the multiple updated strategies for the different zones of the temperature in the plurality of the storage areas, and the read selector selects one storage area according to the detected temperature to read therefrom the updated strategy for a particular zone of the temperature including the detected temperature.**

In regard to claim 5, none of the references of record alone or in combination disclose or suggest an apparatus for recording a signal on an optical disc by irradiating an optical beam according to a strategy which is stepwise updated by a given step amount, the apparatus comprising: a detector that successively detects a linear velocity of the optical disc relative to the optical beam in realtime basis; a strategy generator that operates every time the detector detects the linear velocity of the optical disc for successively generating the strategy according to the detected linear velocity; a storage having a plurality of storage areas, each being capable of memorizing the strategy successively generated by the strategy generator; a write controller that rewrites one of the storage

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areas every time the strategy is generated until the strategy is updated by a given step amount and then rewrites another of the storage areas every time the strategy is generated while leaving said one storage area to hold the updated strategy, thereby updating the strategy through the plurality of the storage areas; a read selector that selects the storage area holding the updated strategy to read therefrom the updated strategy while allowing the write controller to rewrite another storage area; a pulse generator that generates a pulse waveform shaped according to the updated strategy fed from the read selector; a recorder for irradiating the optical beam in response to the generated pulse waveform to record the signal on the optical disc; and a defect detector that detects a defect of the optical disc from the optical beam reflected back from the optical disc, **wherein the strategy generator generates a pair of a regular strategy applicable when no defect exists and a substitute strategy applicable if a defect exists on the optical disc, the write controller holds the updated regular strategy and the updated substitute strategy separately from each other in the storage areas, and the read selector reads the updated substitute strategy when the defect is detected on the optical disc.**

In regard to claim 7, none of the references of record alone or in combination disclose or suggest an apparatus for recording a signal on an optical disc by irradiating an optical beam according to a strategy which is stepwise updated by a given step amount, the apparatus comprising: a detector that successively detects a linear velocity of the optical disc relative to the optical beam in realtime basis; a strategy generator that operates every time the detector detects the linear velocity of the optical disc for successively generating the strategy according to the detected linear velocity; a storage having a plurality of storage areas, each being capable of memorizing the strategy successively generated by the strategy generator; a write controller that rewrites one of the storage areas every time the strategy is generated until the strategy is updated by a given step amount and

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then rewrites another of the storage areas every time the strategy is generated while leaving said one storage area to hold the updated strategy, thereby updating the strategy through the plurality of the storage areas; a read selector that selects the storage area holding the updated strategy to read therefrom the updated strategy while allowing the write controller to rewrite another storage area; a pulse generator that generates a pulse waveform shaped according to the updated strategy fed from the read selector; a recorder for irradiating the optical beam in response to the generated pulse waveform to record the signal on the optical disc; and **a function storage that memorizes a first function for determining an optimal value of the width of the top pulse in relation to the detected linear velocity, a second function for determining an optimal value-of the width of each subsequent pulse in relation to the detected linear velocity, and a third function for determining an optimal value of the interval of the subsequent pulses, and that the strategy generator generates the strategy in terms of the optimal values of the width of the top pulse, the width of each subsequent pulse and the interval of the subsequent pulses by inputting the detected linear velocity into the first function, second function and third function;** wherein the pulse generator generates the pulse waveform containing a top pulse and subsequent pulses, and the strategy generator generates the strategy according to the detected linear velocity such that the strategy contains parameters for specifying a width of the top pulse, a width of each subsequent pulse and an interval of the subsequent pulses.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Battaglia



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PRIMARY EXAMINER